November 1943

SOIL CONSERVATION

OFFICIAL ORGAN OF THE SOIL CONSERVATION SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

Contents

Page

SOUTH CAROLINA NOW JOINS ALABAMA:
By Ernest Carnes 99

WAR COMES TO THE "BRIAR PATCH":
By L. J. Leffelman 100

CASCARA BARK GOES TO WAR:
By Albert Arnst 102

FUR BEARERS FIGHT AXIS:
By Philip F. Allan 106

CAJA de MUERTO:
By Thomas A. Hester 109

FIGHTING THE MESQUITE AND CEDAR INVASION ON TEXAS RANGES:
By H. M. Bell and E. J. Dyksterhuis 111

SOIL IS KEY TO CONSERVATION TEACHING IN OHIO:
By Raymond B. Howard 114

REVIEWS (*The American Land*, reviewed by Paul B. Sears) 118

FOR REFERENCE:
Compiled by Etta G. Rogers 119

MRS. BUILDS THE STOKSTAD TERRACES:
By F. G. Loyd 120

Front Cover
George N. Barbee, Brown Creek Soil Conservation District, N. C., with some of his flock of 200 turkeys
Photographer: O. S. Welch

SOIL CONSERVATION is issued monthly by SOIL CONSERVATION SERVICE of the United States Department of Agriculture, Washington, D. C. The matter contained herein is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, with the approval of the Director of the Budget. SOIL CONSERVATION seeks to supply to workers of the Department of Agriculture engaged in soil conservation activities, information of special help to them in the performance of their duties. Copies may also be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., 10 cents a copy, or by subscription at the rate of $1.00 per year, domestic; $1.50 per year, foreign. Postage stamps will not be accepted in payment.

WELLINGTON BRINK
EDITOR

SOIL CONSERVATION

CLAUDE R. WICKARD
SECRETARY OF AGRICULTURE

HUGH H. BENNETT
CHIEF, SOIL CONSERVATION SERVICE

VOL. IX • NO. 5 ISSUED MONTHLY BY THE SOIL CONSERVATION SERVICE, DEPARTMENT OF AGRICULTURE, WASHINGTON NOVEMBER • 1943

SOUTH CAROLINA NOW JOINS ALABAMA

By ERNEST CARNES

EVERY COUNTY in South Carolina is now in one of the State's 21 farmer-operated soil conservation districts.

The last, culminating step was taken recently when Secretary of State W. P. Blackwell issued a revised certificate of organization for the Jasper Soil Conservation District, previously organized, to include adjoining Beaufort County.

South Carolina is the second State in the Nation completely blanketed with districts—more than 19 million acres being included. Alabama was the first.

Shortly after the passage of the State Soil Conservation Districts law in 1937, farmers in South Carolina got very, very busy. First to complete organization were the Edisto and Upper Savannah Districts. Interest initially centered in the Piedmont and Upper Coastal Plain sections, but later farmers in the Lower Coastal Plain began organizing districts. Although the land in the Lower Coastal Plain is comparatively level, farmers there realized the need of making better use of the land in accordance with its capabilities. They were mightily concerned with drainage, pasture development, improved crop rotations, forestry, and such relatively new forage and hay crops as kudzu and sericea.

Particularly active in helping the districts advance their programs have been the State Soil Conservation Committee and the South Carolina Association of Soil Conservation District Supervisors. E. C. McArthur of Gaffney, a supervisor of the Broad River District, has been chairman of the supervisors association since its organization in 1940. Members of the State Soil Conservation Committee are D. W. Watkins, Director, South Carolina Agricultural Extension Service; H. P. Cooper, Director, South Carolina Agricultural Experiment Station; and Ernest Carnes, State Conservationist, Soil Conservation Service.

Soil conservation districts in South Carolina.

As a result of the work by districts, complete conservation plans have been developed for 9,142 farms covering 1,623,335 acres. These plans provide for bringing many acres of idle or badly eroded land back into profitable production, and for the establishment of necessary soil conservation practices on other lands to protect them from erosion.

Changes in land use, as called for in the conservation plans for individual farms, generally resulted in less acreage for cotton and corn. But with improved crop rotations and the use of legumes, yields per acre have increased, resulting in a larger production of these crops on less acreage. This shift in land use and the use of idle land has enabled many district cooperators to put more land into pasture and hay and feed crops for livestock, bringing about a more diversified system of farming.

EDITOR'S NOTE.—The author is state conservationist, Soil Conservation Service, Columbia, S. C.

554013—43

WAR COMES TO THE "BRIAR PATCH"

By L. J. LEFFELMAN

THE WAR HAS REACHED the "Briar Patch" country, made famous by Joel Chandler Harris at his birthplace near Eatonton, in Putnam County, Ga. During the past year the Plantation Piedmont land utilization project of the Soil Conservation Service, which includes Putnam County, has sold approximately 7,000,000 board-feet of lumber, veneer blocks, cross-ties, pulpwood, and other forest products to fill war production needs.

When Joel Chandler Harris wrote the story of "Uncle Remus" and the exploits of Br'er Rabbit, Br'er Fox, Br'er Possum, and other fabled occupants of this area, most of the trees now furnishing vital war materials were just beginning their life journey which was ultimately to end in flying glory as plywood bombers, crating for Garand rifles, shells, and tanks, or as building lumber for barracks and general camp construction.

This particular part of Georgia originally was one of the finest examples of the "old plantation system," in which cotton was king. In time, as the result of uncontrolled erosion and later the coming of the boll weevil, it became an area of worn-out, gullied, and abandoned farms. Finally, when the depression dealt its devastating blow, the Government was asked to step in and lend a helping hand.

About that time, Congress enacted the Bankhead-Jones Farm Tenant Act. This act provided among other things for the purchase of submarginal land, relocation of the occupants of such land on better areas, retirement of purchased areas from intensive agricultural use and their development for extensive uses to which they were better adapted, such as forestry and grazing, and in some cases wildlife and recreation.

After several months' study of the local situation, the Plantation Piedmont land utilization project was officially approved in the fall of 1934 as the first project of its kind in the United States. W. F. Leverette, of Eatonton, was appointed project manager, and the work of buying and developing the 72,000 acres now included in the project began early in 1935. Immediate work was provided for several thousand people living in that section who had not seen a pay check since the beginning of the depression.

Smaller logs from improvement cuttings on the project provide pulpwood for war uses.

Properly cut timber on Plantation Piedmont project—brush lopped and scattered, stumps cut low, thrifty trees left for future harvesting.

Fire towers with telephone lines to headquarters were constructed to spot forest fires quickly, and many miles of roads and fire trails were built to aid in fire suppression. Millions of trees, shrubs, and other plants were set out for erosion control on abandoned fields and in gullies, where ample food and cover were provided by these plantings for Br'er Rabbit and his neighbors of the "Briar Patch."

EDITOR'S NOTE.—The author is chief, regional land management division, Soil Conservation Service, Spartanburg, S. C.

Rock Eagle Indian Mound was restored and Rock Eagle Lake, now classed as one of the best bream and bass-fishing lakes in the State, was constructed. The mound, a large pile of rocks shaped like an eagle, 120 feet from wing tip to wing tip, 102 feet from head to tail, and 8 feet high in the center, is said by archeologists to be one of the most important effigy mounds east of the Mississippi River.

During the project's development period, 450 farm families who had been trying to make a living on worn-out lands were assisted in finding new homes on better land, many with the aid of the Farm Security Administration. Old broomstraw fields on the abandoned farms were planted to kudzu and other hay crops or developed for pasture, and made available to farmers near the project to provide them with supplemental grazing and hay for their livestock under an equitable fee permit system.

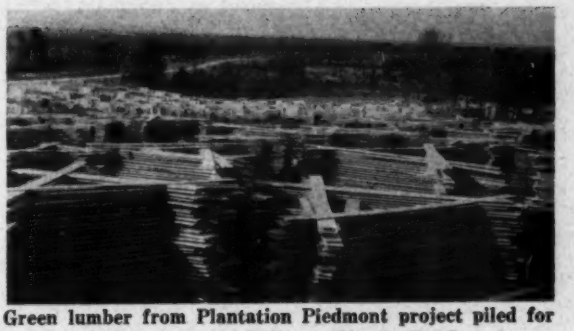
A survey of forest products showed that considerable amounts of valuable timber still remained in the project area. Many of the old plantations had mature trees standing near old house sites, along creek bottoms, or in gullies where the land had first been abandoned as a result of erosion. Many old fields had reseeded to fairly good stands of loblolly and shortleaf pine and the past 8 years of intensive fire protection has helped materially to increase growth in these young stands and make them ready for early thinnings for pulpwood.

As a result of the survey, a program of timber and pulpwood sales was begun on a small scale to meet local building needs and to provide seasonal part-time work for people living on or near the project. About this time a tornado hit the project and did considerable damage to scattered stands of timber. A contract awarded through bids to a large operator resulted in salvaging about 1,000,000 feet of this wind-thrown timber.

By the time this sale was completed, the war program was demanding forest products of all types and kinds, including pulp for plywood and plastics, crating for guns and planes, and lumber for packing cases of every description. In the project, forested areas represented all stages of growth, from seedlings just taking over old fields to small scattered stands of mature timber. Under these conditions, logging was especially adapted to small operators who could set up, complete logging and sawmilling, and move to another site without too much expense.

The goal of forest management requires careful selection of trees to be cut so as to promote the rapid growth of remaining trees and to develop high quality timber. No clear cutting is permitted. All trees

(*Continued on page 116*)



Green lumber from Plantation Piedmont project piled for drying at planing mill near Monticello, Ga.

An example of improperly cut timber from which no further return can be expected during an average lifetime. Large and small taken indiscriminately, stumps left high.

Sawing pine tree into logs on Plantation Piedmont project.

Crating material needed in the war program will be provided by these veneer blocks loaded at Hillsboro, Ga.

These are leaves of cascara buckthorn, sometimes confused with those of red alder.

By ALBERT ARNST

POSTERS designed for a specific purpose can stimulate war time conservation on a widespread basis. This fact was illustrated by Soil Conservation Service foresters in the Pacific Coast Region in encouraging the conservation harvesting of cascara bark during the 1943 peeling season.

Out in the Pacific northwest, where the Axis already has dropped fire bombs in forests and shelled beach points, the bark of cascara buckthorn (*Rhamus purshiana De Candolle*) has gone to war. It has joined the Allies as a medicinal drug to keep our forces in top physical condition. Cascara bark long has had commercial significance, because its extract is used widely as a laxative and cathartic. First aid kits of our armed forces include cascara pills because of their tonic influence.

The "We Buy Cascara Bark" sign is an accepted symbol of rural life in this area. For many years, the annual bark harvest has been an important income source for farmers, part time loggers, school children, and even vacationists. In 1943, the combined demands of our armed forces and lend-lease commitments will swell the harvest to some 5,000,000 pounds of dried bark. The mid-year war industry price of 20 cents a pound, compared with the normal average of 5 cents, has brought many 'teen-agers and women to the woods for their first try at peeling cascara's yellow gold. And with them came an increased problem of destructive harvesting by inexperienced hands, of a likewise important soil conservation tree.

The tree's commercial range extends from southern British Columbia south to northern California, chiefly west of the Cascade Mountains and in the coastal regions. Once common as a large tree, it now is found mostly in diameters up to 6 inches, except in the more inaccessible areas where larger specimens still can be found. Cascara is a frequent inhabitant of cut over lands and occurs along most rural fence rows and road edges. It is of direct benefit to wildlife, for birds relish its fleshy fruit.

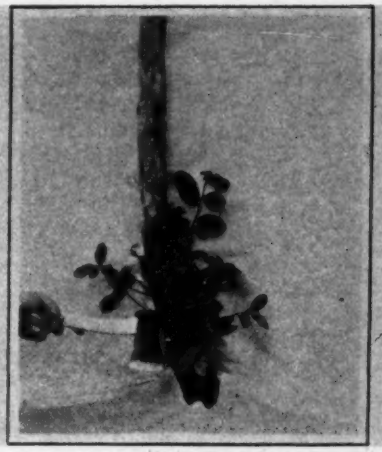
Forest conservationists for many years have been concerned with the perpetuation of cascara as a forest tree and as an industrial resource. Because a high percentage of the bark is garnered through trespass, a condition resulting from the small owner's indifference to cascara's stumpage value, much peeling is unregulated and unsupervised, which leads to destructive practices in bark harvesting.

On the opposite page is a photographic reproduction of the job sheet, or poster, that was devised by Soil Conservation Service foresters to encourage conservation harvesting of cascara bark.

EDITOR'S NOTE.—The author is district forester, Soil Conservation Service, Sedro-Woolley, Wash.

BAD PRACTICE

This tree was peeled to the ground and left standing. Half the bark was wasted, and the tree was killed. Such unnecessary waste depletes the future supply of Cascara, vitally needed in war and peace.



NOT TOO GOOD

This tree was peeled and left standing. Probably half the bark was wasted but the peeler did leave an unpeeled stump. The tree will produce another crop, but the roots have been weakened by the top. The new sprouts are weak, and the leaves are not too healthy.

GOOD PRACTICE

This tree was cut down before peeling. No bark was wasted. The low-cut, unpeeled stump with a sloping top has several healthy new sprouts which will produce another crop quickly. Conservation pays, both now and when the next crop is ready.

These three trees were peeled in the spring of 1942 at about the same time; photos taken after one growing season.

••MANAGE YOUR CASCARA••

ALONG COUNTRY ROADS ONE SEES MANY CASCARA TREES THAT ARE PEELED ONLY AROUND THE BUTT. MOST OF THE BARK HAS BEEN WASTED. THE TREES ARE NOT CUT OFF AT STUMP LEVEL; AND THE BARK HAS BEEN PEELED DOWN TO THE ROOTS, WHICH KILLS THE TREES.

IN THE INTERESTS OF CONSERVATION, FORESTRY DEPARTMENTS OF OREGON AND WASHINGTON HAVE OUTLINED SUGGESTED RULES FOR THE PEELING OF CASCARA TREES.

- TREES SHOULD BE FELLED BEFORE PEELING BECAUSE NEW SPROUTS WILL SPRING FROM THE STUMP AND PROVIDE A NEW CROP IN ABOUT TEN YEARS.
- TREES LESS THAN FIVE OR SIX INCHES IN DIAMETER SHOULD NOT BE FELLED. PEELING SMALL TREES IS A WASTE OF TIME AND MONEY; BECAUSE SMALL TREES WILL NOT YIELD ENOUGH BARK TO MAKE PEELING PROFITABLE, AND MANY YEARS OF GROWTH ARE LOST.
- LEAVE AN UNPEELED STUMP NOT OVER SIX INCHES HIGH WITH A SLOPING TOP TO SHED RAIN. AS THE ABOVE PICTURE SHOWS, THIS PRACTICE IS ESSENTIAL IF THE TREE IS TO LIVE AND PRODUCE FUTURE CROPS OF BARK.
- LIMBS AND BRANCHES SHOULD BE PEELED DOWN TO A DIAMETER OF ONE INCH. THE NATION NEEDS CASCARA BARK AND IT SHOULD NOT BE LEFT TO ROT ON LIMBS.
- PEELERS SHOULD TAKE EVERY PRECAUTION AGAINST STARTING OR SPREADING FIRES.

THE ENTIRE WORLD'S SUPPLY OF CASCARA COMES FROM THE NORTHWEST. WITH PROPER CONSERVATION, IT WILL REPRODUCE ITSELF SUFFICIENTLY FAST ON A LOGGED-OFF LAND TO INSURE A CONTINUOUS CROP, PROVIDED THERE IS REASONABLE CONSERVATION PRACTICE AMONG PEELERS.

CASCARA BARK IS SHIPPED TO THE DRUG TRADE, AND THE LAWS GOVERNING THE HANDLING OF CRUDE DRUGS ARE VERY STRICT. THE LAW REQUIRES THAT ALL BARK BE FREE OF ADULTERATIONS, THOROUGHLY DRY, AND REASONABLY FREE OF MOSS WHEN OFFERED FOR SALE. THE BEST WAY TO DRY BARK IS IN THE SUN, BUT BARK MUST NOT BE ALLOWED TO REMAIN OUT DURING PROLONGED RAINS; BECAUSE RAIN LEACHES OUT THE VITAL EXTRACTS.

For further information inquire U. S. DEPARTMENT OF AGRICULTURE • SOIL CONSERVATION SERVICE

A mixture of good and bad practices. Not all the limbs have been peeled clean. The entire tree, furthermore, should have been cut down to promote vigorous sprouting.

Chief among the harvesting abuses is the prevalent practice of *not* cutting down the tree after the bark has been peeled. Cascara is a prolific stump sprouter, and growing coppice stands is the cheapest and easiest way of maintaining a perpetual bark supply. Consequently, it is essential that every peeled tree be left in best condition for vigorous sprout production. A peeled tree (left standing) will die and will produce no sprouts, or very weak ones at best.

The surest guarantee of sprout regeneration is the leaving of a low, unpeeled stump with sloping top to shed rain. Other management practices are important, such as peeling larger trees and small limbs, thinning sprout growth and making cultural prunings. But if every peeler strictly observed the one rule of cutting down the tree after peeling, a future supply of cascara bark would be assured.

Some education in conservation harvesting of cascara bark has been carried on by the "big three" crude drug dealers in the northwest. A number of timber companies and the United States Forest Service have used conservation contracts in selling cascara stumpage. Printed pamphlets and placards have been circulated to the schools, and other educational means have been employed.

Because of the certain emphasis that would be given bark peeling in 1943, and because of the new peelers pinch-hitting for veterans now in the armed forces or war work, it early seemed particularly appropriate that conservation be emphasized in this year's bark harvest.

Soil Conservation Service foresters appreciated the need for conservation harvesting of cascara bark in Western Washington, and realized the contribution that the local soil conservation districts could make. An illustrated poster offered distinct possibilities. One developed for public display seemed more advantageous than a page-size reproduction for individual distribution, because it could be placed to reach more peelers.

A sheet of instructions was drawn up and requisitioned for the expected local demands from schools, stores, bark dealers, and others. The 11-by-14-inch poster was distributed in May to the schools in Skagit and Snohomish Counties, for bulletin board

Cascara's sprouting tendency facilitates its reestablishment. From 4 to 15 sprouts may develop from 1 stump section, if the tree is cut down.

use, and sent to other public display points, such as banks. Copies were provided crude-drug dealers, whose branch offices were near the territory to be covered.

The response from these professional dealers was gratifying beyond expectations. Instead of the customary "we acknowledge receipt" letters, orders were received for large quantities of the poster, to be placed in almost every town and village in Western

School children find bark harvesting a profitable occupation.

Oregon and Washington and Northern California. The widespread organizations of the "big three" crude-drug dealers, extending into virtually every community, gave the poster a vast audience that could not have been obtained from in-Service distribution.

The State Supervisor of Forestry in Washington ordered a supply for distribution to district fire wardens, who, in issuing forest-use permits, called attention to the conservation rules. One large timber company used the posters in its numerous logging camps. Other miscellaneous requests were received from dealers in evergreens and from interested professional foresters.

By August the total distribution had reached about 1,300 posters. Of this amount almost 1,000 were sent out in reply to requests from private sources, such as the crude-drug dealers.

Although it is difficult to measure the precise effect of the poster in obtaining better conservation in bark harvesting, it is possible to approximate the audience reached. Most crude-drug dealers placed the poster near the weighing scales at bark-collection agencies, and the sheet therefore was observed by many people and by the proper class of people, namely, the peelers. A conservative estimate is that each poster was seen and read by at least 100 people, which would comprise an audience of 130,000 individuals, most of them peelers or associated with the peeling trade.

Official travelers in Western Oregon and Washington have reported the popular interest created such comments as "The pictures showed me for the first time why it is so important to cut down the tree." The sheet prompted individuals to write cascara conservation letters to newspapers, and in this correspondence the phraseology of instructions frequently is obvious. Unquestionably, this widespread popular interest has resulted in widespread conservation on many acres of cascara land.

Soil-conservation districts up and down the coast featured local articles in newspapers and farm journals, stressing also other important phases of cascara management. Managing sprout growth by thinning the numerous stems to three or four of the most vigorous ones and retaining them for crop maturity was discussed, as were variations in bark-harvesting methods. Information was included as to spacing, livestock protection, sources of tree stock, cultural treatment, and harvest yields of dry bark.

Farmers also were given planting instructions for setting out cascara plantations, and complete farm plans developed with cascara owners contained the detailed good management practice recommendations.

The success obtained with this illustrated poster outlining fundamental conservation practices may suggest possibilities in other regions where a farm or forest crop lends itself to similar widespread treatment. By selecting only one or two of the more important practices for dramatized presentation by visual methods, much wartime conservation can be effected on vital production battlefronts at home.

Two and a half million skunks are taken annually in the United States. With 9,000,000 muskrats, 3,500,000 opossums, 600,000 raccoons and 450,000 mink, the farm fur bearers go to war—producing fur, fat, and food.

By PHILIP F. ALLAN

THE FUR-BEARING ANIMALS have been called to the fight against the Axis. On the basis of their contribution they might well receive a Selective Service classification—3F—fur, fat, and food. The draftees are a group of wild animals drawn from the farm lands of the United States. Into the battle march platoons of mink, regiments of 'coons, divisions of skunks, and armies of 'possums and muskrats.

The pelts of these small residents of farm and ranch provide warm linings for gloves, hoods, vests, and other apparel for the armed forces and for civilians working in arctic climates or high altitudes. The merchant marines of the United Nations are clothed in fur vests in winter. Mountain infantrymen of many nations are well-equipped for cold-weather fighting with parkas, breeches, and gloves lined with furs. Meanwhile, Hitler begs each year for fur coats to enable the Wehrmacht to face the Russian winter.

EDITOR'S NOTE.—The author is assistant chief, biology division, Soil Conservation Service, Washington, D. C.

It is from the furs that the most important contribution of the muskrat, opossum, skunk, raccoon, and mink comes. The 16,000,000 annually taken provide an important, if minor, source of farm income. They are produced principally on parts of the farm or ranch unsuited to the production of cultivated crops, livestock, or timber. Marshes, ponds, stream banks, drainage ditches, hedges, woodland borders, gullies, and rocky outcrops are the homes of fur bearers. These areas are common on nearly every farm and total more than 30,000,000 acres on agricultural land. With little or no management whatever the five farm fur bearers are produced—in Iowa to the extent of $820,000 worth annually, in Minnesota between one and two million dollars worth, in Pennsylvania $800,000, in Texas $750,000, in North Dakota $333,000, and in California $125,000.

The fat from skunks, opossums, raccoons, and several other animals are being added to the salvage of other fats for the production of glycerine—a step in the manufacture of nitroglycerine and other explosives. In Missouri, the St. Louis Fur Institute and private individuals saved more than 260,000 pounds of such fats, while in Pennsylvania 94 tons were saved. Converted into ammunition this amount of fat means 750,000 rounds of 37 mm. antiaircraft shells and 1,880,000 rounds of .50 caliber machine-gun cartridges. Since the combined harvest of these two States is about 9 percent of the total number of fur bearers taken annually, if fats were saved at the same

A stream which cuts into crop fields is a distinct liability, and the trapper would waste his time here.

The willows and cattails planted 18 months earlier have already provided a place where the trapper could expect to catch a skunk or muskrat. Furthermore, the crop field is protected.

rate elsewhere, some 2,500 tons were contributed by fur bearers—enough to provide explosives for a bombing raid "in great strength."

Fur bearers are useful as food. Maryland muskrats have long been sold in Baltimore, Philadelphia, and Washington markets. Louisiana officials claim the annual production of these so-called "marsh rabbits" in their State would equal 6,000 beeves. In some localities in Texas 40 percent of the opossums caught are used for food, while Ohio Conservation Department officials estimate that 88 percent of the raccoons taken in that State are eaten. Several other animals whose fur may be sold, likewise are useful food animals, notably, jack rabbits, cottontails, squirrels, and woodchucks.

Farmers and ranchers are helping the fur bearers to fight the Axis by providing homes for more of them. Land operators are more familiar with

Small areas unsuited for production of cultivated crops, pasturage, or timber, abound on the Nation's farms and ranches. These odd spots produce many of the farm fur bearers.

managing land than with managing wild animals, but they know simple land management measures that bring about material increases in fur-bearer fighting forces. Anyone who has trapped muskrats, 'coons or mink knows that more of them will be found along a well-vegetated streambank than along one which is raw and eroding. There are two simple ways in which to develop the vegetation that will not only prevent further erosion but also provide homes for those fur animals. Protection of the banks by fencing or converting suitable adjacent fields from pasture to cultivation permits a natural growth of streamside plants to become established. When, as streams frequently do, they cut into valuable adjoining lands the prevention of further cutting is justification in itself for developing vegetation. The accompanying fur bearers are an added value. Not all streambank protection is as simply accomplished. Usually it must be accompanied by erosion control measures on the watershed to prevent rapid run-off of water. Sometimes structures are needed to prevent streambank cutting and suitable species of plants, such as willows, must be established by planting. Comparative studies show that there are two to four times as many muskrats per mile when the stream bank is protected as when the stream bank is grazed.

Farm drainage ditch banks and the shores of ponds and lakes produce many more fur bearers when good habitats are provided through the establishment of suitable vegetation as when the banks are bare. Exposure to livestock and continued burning usually destroys the kinds of plants best suited to fur bearers and often assures a crop of obnoxious weeds. Reports indicate that yields of muskrats along ditches designed to improve crop fields and pastures by drainage are much greater when the banks are well vegetated, while marshy lake shores may yield 100 percent more muskrats than bare "resort type" shores.

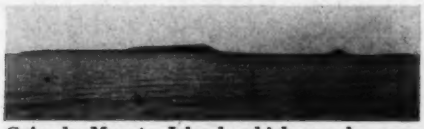
Fencing, planting and other measures for the establishment of erosion-control vegetation in strip-mined areas, gullies, box canyons and rocky outcrops are equally effective in improving such areas for fur bearers. In the woodland, protection from fire and the grazing of livestock, selective cutting of timber, the preservation of den trees and the establishment of shrub borders all contribute to creating or perpetuating homes for fur bearers. Contour hedges and borders of shrubs in croplands and pastures are erosion-control measures favorable to the production of such fur bearers as the skunk.

Where practical, more complex treatments of the

(*Continued on page 117*)

CAJA de MUERTO

BY THOMAS A. HESTER



Caja de Muerto Island, which can be seen from Senor Matos' home.

THE VIEW from Senor Antonio Matos' home, situated on one of the highest ridges overlooking the Caribbean Sea, is as fine as any in all the green Island of Puerto Rico. The house was built to make the most of the view and from his front porch, when the weather is clear, Senor Matos can see across a broad expanse of blue water the box-shaped island known as the Caja de Muerto, which in Spanish means Death Box, or coffin.

It was pleasant for Senor Matos to live there with his family, surrounded by 60 acres of his own land. But although the Matos family worked hard in the fields, they did not prosper. Finally, there came upon the 60-acre farm an $800 mortgage and Senor Matos, his good wife, and their five children were no longer happy. The Caja de Muerto loomed cross the blue water like an evil omen.

"Then," says Senor Matos, "the view depressed me. What could I see? The Death Box in the distance and close at hand a farm burdened with a mortgage, here and there a few half-hearted patches of food crops parched by the long rainless season, the rest of the land bare and useless, and a lonesome path leading to the highway a half-mile away.

"For a truth," the Senor declared, "I thought I would move away, for the outlook was none too good. But now, ah! . . ." the Senor paused and waved a hand to indicate this cheerful view of the present and future.

Just when despair was darkest, Senor Matos held a consultation with himself. To be sure, the crops had failed; certainly, the farm was mortgaged. But the worst thing that had happened was that he had accepted failure as inevitable and, because of this, his whole outlook had changed. Then it was that a new determination came to the rescue. *I must have a long-range plan that will enable me to improve my farm and pay off my mortgage*, Senor Matos decided.

The more he thought of it, the more he became convinced of the wisdom of a long-range farming plan. So Senor Matos enlisted the best technical aid he could find. The Soil Conservation Service made a survey of his farm to determine the type of soil, the best farming practices, and the crops best adapted to his land. The wet seasons, followed by long dry periods, posed special problems.

"Of course," Senor Matos relates, "I could not do everything to change my farm, but I could begin if I had a plan to tell me what to do first. I could not wave a wand, or even a machete, and improve everything at once, but I could start."

Several yards below the house on the mountainside, there was a clear bubbling spring, pouring out of a big pipe stuck in the mountain. Fresh, cool water in abundance came out in a stream as big as a man's arm. Why not use the water to wet the parched hillside lands? Never to begin is never to win, Senor Matos decided, so he set to work. With expert engineering supervision, he built an irrigation system so that he could water his land when the dry season comes.

All of Senor Matos' farm is very steep and the oxen must pick their way carefully over the mountainside, lest they stumble and roll to the foot of the mountain far below. During the rainy season much water falls continuously on the steep land and, were it not for the rock and vegetative barrier which

Senor Matos with maul used for husking coffee and rice in wooden "pilon" in much the same way as American Indians made corn meal.

Editor's Note.—The author is Associate Soil Conservationist, Soil Conservation Service, Meadsville, Miss., formerly stationed at Ponce, Puerto Rico.

Senor Matos has constructed across the slopes and rows planned on the contour under the supervision of Service technicians, the soil, too, would slide down the mountain side. Senor Matos has learned also the value of keeping something growing on the land at all times.

And now, with his irrigation system to water the land during dry periods, his rock and vegetative barriers and contour farming methods to hold the soil in place, and a sound farming program which provides a sequence of crops and keeps the land covered throughout the year, Senor Matos has a continuous supply of vegetables for his family and a surplus for sale. A pasture improvement program developed as a part of the farm plan has enabled him to increase his cattle from 13 to 17 head, and to keep the cows better fed. The milk production on the farm has doubled. The entire mortgage, with the exception of $55, has been paid since his farm plan was developed.

The five-year conservation plan for the farm includes many improvements which Senor Matos has not yet made. Among these is a project for installing a hydraulic ram to pump water from the mountain spring up to the house. Then there will always be plenty of running water to wash the dishes, the clothes, the family, or the floor without the back-breaking job of bringing water in pails up the steep hillside. Mrs. Matos and the children are looking forward to this.

"I will be glad when running water means I won't have to run and get it," comments one of the little Matos children.

The path from the highway is beaten smooth now by the people who come up the mountainside to buy food fresh from the farm. No one is hungry on the Matos farm, except those who come to buy food, and they do not go away empty handed.

"It is nice to make such friends," says Señor Matos, "and it is pleasant to hear the jingle of coins from the sale of the vegetables."

When Señor Matos sits on his porch in the cool of the evening, after a profitable day's work in the field, he doesn't find the view depressing any more.

"You know," the Señor remarked, as he sat one afternoon with some guests eating fresh home-grown fruits from a large platter, "That Caja de Muerto doesn't look like a Death Box to me any more. Don't you think it might be a treasure chest, instead?"

BEAT THIS, IF YOU CAN

A phenomenally long row of corn is to be found on Roy Eiffert's farm 3 miles southeast of Monona, Iowa. It is 14.6 miles long! This row of corn is planted on the contour, and winds around a hill corkscrew fashion.

Mr. Eiffert has contour-planted his corn for the past 8 years and believes it to be a very good farming practice. He states, "I have lost very little, if any, soil from the contour corn fields this year."

Mr. Eiffert also carries on other conservation practices. He is one of the first farmers in Clayton County to use lime. All fields on the Eiffert farm have been limed two times and some have been limed a third time.

Senor Antonio Matos looking across contoured hillside of farm toward Guayabal Lake, 2 miles away and 4,000 feet lower in elevation.

FIGHTING THE MESQUITE AND CEDAR INVASION ON TEXAS RANGES . . .

By H. M. BELL and E. J. DYKSTERHUIS

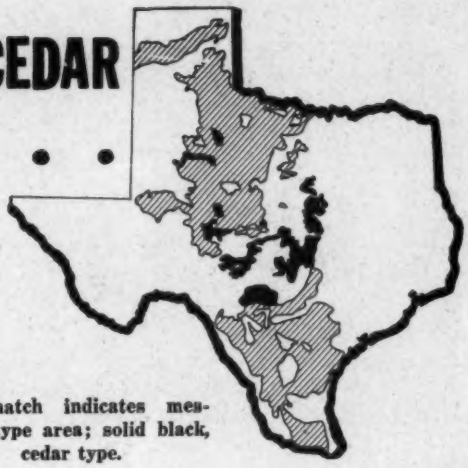
CEDAR AND MESQUITE are major problems on Texas ranges, materially reducing ranch income and lowering the State's potential meat production for the war effort.

These two trees have been invading stealthily vast areas of Texas ranges for years, frequently changing productive lands to a wilderness of waste. Today it is estimated that cedar and mesquite on 51,000,000 acres are costing ranchers $40,000,000 each year in lost income and reducing the State's potential meat production by 400,000,000 pounds annually.

Approximately 45,000,000 acres in Texas have enough mesquite on them to be noticable to the casual observer. There are about 6,000,000 acres on which cedar is more or less abundant. Thousands of acres adjacent to these areas are rapidly becoming infested.

The gradual invasion by these troublesome plants has caused them to go largely unnoticed until they have become a tremendous problem on thousands of ranches. Observations indicate that a mesquite plant is 8 to 12 years old before it is big enough to be conspicuous among other shrubs, grasses, and weeds. Cedar must reach an age of 4 to 6 years to be noticeable. Old-timers can recall when areas, now a wooded jungle, were used for roping grounds or holding grounds because they were open and free from trees and shrubs. The fact that these areas have become heavily infested is especially significant when it is appreciated that the invasion—the direct result of heavy use—has been at the expense of a grass cover which is no longer produced.

As shown in the accompanying map, areas occupied by cedar and mesquite are distributed over a considerable portion of the State. Within reasonable limits, variations in climate and elevation have little effect on the range of mesquite. However, within its range, it is consistently associated with deep, productive soil where soil-moisture conditions are reasonably favorable, as in the valleys and on level mesas. These are also the best areas for grass



Cross-hatch indicates mesquite type area; solid black, cedar type.

production. Cedar, unlike mesquite, makes a dense growth on shallow soils common to the steeper slopes where it is an effective type of cover for runoff and erosion control. Cedar will also do well, however, on the deep, more productive soils. Today cedar occurs on vast areas of soils with gentle slope which, under proper treatment and management, would support grass with more effective use of rainfall and without accelerated erosion.

Numerous surveys or vegetative inventories have been made on mesquite-infested areas and to a lesser extent on cedar areas. These inventories have been correlated with, and substantiated by, actual use records over a period of several years and provide a basis for evaluating the production of these areas. On land where mesquite is growing, the estimated number of acres required to keep one animal unit (one cow or equivalent) varies from 12 to more than 100. In cedar areas the required acres vary from approximately 8 acres to a point of practically no grazing value within a pasture because all the grass is crowded out by cedar. These variations are associated to some extent with climate, elevation, and soil condition, but the major source of variation in grazing capacity is the density of the stand of mesquite or cedar. Checks and estimates of the rate and extent of recovery made following the clearing of infested areas substantiate this conclusion.

From the analysis of sample surveys of typical mesquite areas made in connection with a soil conservation district program and from data of the flood-control-survey program in typical cedar country, it was possible to derive average figures for grazing values. In the North Concho Soil Conservation District an average of 19 acres of mesquite range are required for an animal unit year long. From the Colorado and Concho flood-control surveys it was

---

EDITOR'S NOTE 1.—The authors are chief, regional range division, and associate range conservationist, respectively, soil conservation service, Ft. Worth, Tex.

EDITOR'S NOTE 2.—Throughout Texas both the redberry juniper (*J. pinchoti*) and Mexican juniper (*J. mexicana*) as well as Eastern redcedar (*J. virginiana*) are universally called "cedar," the common usage employed in the first sentence of this article.

Mesquite country with cleared area in foreground. Most of the stumps show some sprouting.

A type of treedozer used on thousands of acres of mesquite country. The triangular bumper in front is lowered to break and partially uproot stems. The blade completes the uprooting and pushes the material to one side.

estimated that an average of 48 acres of cedar country would be required per animal unit year long. The surveys included all degrees of density of stand. On sites that are well suited to, and very subject to, invasion by cedar or mesquite, but not yet affected, the average number of acres required per unit in the mesquite country is 12, and 23 for the cedar country.

When these average figures are applied to areas in Texas, we have a possible production of 2,368,421 animal units on the mesquite-covered area; whereas, if the mesquite were removed and the area made to produce even an average amount of forage, it would support 3,750,000 animal units. Likewise, the cedar area now supporting 125,000 head of cattle could be made to support 260,870 head.

Considering these areas to be stocked with breeding cows, or their equivalent in breeding sheep, and taking into account normal production, death losses, and replacement, we find quite a wide variation in present and potential beef production.

In the mesquite area the present beef production would be 626,480,000 pounds; whereas, after clearing and improving the range, it would be possible to produce 993,000,000 pounds, or a gain of 366,520,000 pounds. In the cedar area present production is estimated at 33,062,000; whereas if it were cleared and improved to normal grazing capacity, it would be possible to produce 69,000,000 pounds of beef, or a gain of 35,938,000 pounds. These increases, at 10 cents per pound for beef, would represent a total value of $36,652,000, or 81 cents per acre per year for the present mesquite-infested area of the State. The monetary increase from the cedar area would be a total of $3,593,800, or 60 cents per acre per year.

Experience has shown that these increased per acre returns for one year would not nearly cover the per-acre cost of eradication of either mesquite or cedar. However, over a period of years, the cost of the job could be retired.

It would be difficult to arrive at an average cost of eradicating either mesquite or cedar because of the many factors that enter into the cost; nor can it be said that any single method of doing the job is "best" under all conditions. Various agencies and individuals have given a great deal of thought, time, and money to methods of eradication.

With cedar, the most satisfactory methods vary with the species involved. The Mexican or mountain cedar and Eastern red cedar can be satisfactorily destroyed by cutting or slashing the exposed parts of the tree. Redberry juniper, on the other hand, will sprout from the undisturbed stump and therefore must be eradicated by destruction of the stump and more shallow portions of the root system. The hand axe is probably the most satisfactory tool to use on the first two species. Redberry juniper requires more elaborate equipment. The ordinary bulldozer,

Cedar area showing dense original stand at right. Area at left, cleared 5 years ago, now has an abundance of sprouts.

the modified treedozer, and the truck and chain pull method have all been used successfully, but oftentimes quite expensively. Costs of clearing cedar vary from $1.50 to $15 per acre, depending on the method used and the density of the stand. There is a compensatory cash income in the clearing of cedar, particularly the nonsprouting species. High quality fence posts obtained often have a per acre value equal to, or greater than, the cost of clearing. Fuel wood also has considerable value in all species.

Eradication of mesquite presents more of a problem. In the first place, a large area is involved. Furthermore, persistence of sprouting, the cost per acre of available methods of eradication and the low value of the wood products are limiting factors. Investigational work is being conducted by the Texas Agricultural Experiment Station and the Operations and Research Division of the Soil Conservation Service to determine how the job can best be done. The most promising methods employed to date are hand grubbing, the use of petroleum oils or poisonous chemical compounds, the treedozer, and more recently, the Jaques saw. Each has definite limitations, some of which almost prohibit its use. Hand grubbing is most certain to result in complete eradication within a relatively few years because all sources of new sprouts are removed. The cost may be prohibitive, depending on the density of stand, cost of labor, condition of soil, and size of trees. Cost alone almost limits the use of this method to sparse stands of small plants. Use of the Jaques saw has the disadvantage that, for effective eradication, cutting must be followed by oil or chemical treatment to kill dormant buds and small sprouts which develop later.

Techniques that will insure a high percentage of kill from the application of oils have not yet been perfected. Stands treated with oils commonly show many basal sprouts a year after the original single-stemmed plants have been killed. Too, the labor cost is relatively high. The same difficulties are encountered in the application of chemicals and, in addition, there is the danger to livestock where poisonous materials are used. The use of such materials imposes an added cost because the pasture cannot be used during the time poisonous materials are being applied and until such time as there is no further danger to livestock.

Treedozers have proved quite successful and relatively economical. However, there are limiting factors in their widespread use. The heavy equipment needed is not readily available and it is expensive. Furthermore, much soil and grass is disturbed in the operation because success depends upon completely uprooting each plant. More acres have been treated by this method than by all others combined and many improvements have been made in design of equipment since an ordinary bulldozer was first put to this use.

The Jaques saw, although not yet tried on a large scale, seems to have possibilities because of its relatively low initial cost and its suitability for use on the ordinary farm tractor.

None of the methods thus far used has met the common problem of preventing sprouting or regrowth following the clearing operation. It has been found that the first requisite to a complete job is destruction of all buds, both above and below the ground line. Unless this is done, sprouting is almost certain to occur.

In conclusion, the following points should be given careful consideration if a satisfactory job of cedar and mesquite eradication is to be obtained:

For Mesquite

1. Start first on land that will give the highest return on the investment in the shortest possible time. Productive soil where the stand is not too thick, or the trees too big, is likely to be the best place to start.

Jaques saw—latest addition to brush-clearing devices. The upper bar pushes the crowns forward before the circular saw is engaged.

2. Be sure the method used is effective. Completely kill the trees and destroy all remaining buds that may produce a sprout.

3. Disturb soil and grass as little as possible in the operation.

4. Do not overlook small seedling plants. They will be trees in a few years.

5. Where poisonous materials are used, protect the area from livestock until all danger is past. Also use care in applying the solution to avoid danger to men doing the job.

6. Follow up the clearing operation systematically for 2 or 3 years to destroy all sprouts or seedlings that may appear.

7. Practice grazing management on the area to insure maximum development of desirable forage plants and maximum production of forage.

8. Leave brush on the cleared area where desirable to protect the seedling grass plants and insure seed production by older grass plants.

9. Salvage all wood of value for fuel and fence posts.

10. Plan a systematic program of eradication that will fit in with normal practical range operations.

For Cedar

In addition to the preceding suggestions concerning mesquite, the following should be considered in a cedar-eradication program:

1. There is little to be gained from clearing cedar from steep slopes with shallow soils. It is doubtful that a stand of grass readily can be established on such sites.

2. Fire is a dangerous method of clearing cedar. It leaves the soil bare and subject to severe erosion, burns valuable surface organic matter and destroys grass plants and seeds.

3. Where the natural source of seed is inadequate to regrass a cleared area, seeds of adapted grasses may be scattered to good advantage or on favorable sites.

SOIL IS KEY TO CONSERVATION TEACHING IN OHIO

By RAYMOND B. HOWARD

THE TEACHING of conservation in the Buckeye schools is based upon the idea that the protection and restoration of natural resources is vital to training for citizenship. Conservation education becomes an attitude or "way of living." The Ohio plan considers the task of teaching conservation too sweeping and too urgent to be assigned to one teacher, and holds that every teacher should feel a responsibility and interest in the subject.

It does not bring another textbook into an already overcrowded curriculum. It brings facts—frequently using the good earth as a textbook. Facts which can be integrated with, and woven into, many of the subjects already taught in the schools.

Not one individual, therefore, is designated as "the conservation teacher." All are given an opportunity to teach conservation.

The teaching of conservation in the Ohio schools is a joint project of the Ohio Division of Conservation and Natural Resources and the State Department of Education. When Don Waters was appointed head of the Division of Conservation by John W. Bricker, the new Commissioner revealed that one of the things in the long-range program which he and the Governor had agreed upon, was this plan of extending conservation teaching to all of Ohio's schools.

When the Ohio Division of Conservation and Natural Resources succeeded the Ohio Division of Conservation in 1940, through a legislative act signed by the Governor creating a bipartisan Commission

EDITOR'S NOTE.—The author is director of public relations, Division of Conservation and National Resources, Columbus, Ohio.

empowered to make the appointment of the Commissioner, Mr. Waters was reappointed and this Commission found the new education program well on the way to success.

The first step was to secure the cooperation of the State Department of Education. True, a few Ohio schools had been outstanding in their presentation of conservation. True, material had been previously prepared by the Division of Conservation for the use of both teachers and pupils, but its use without the sanction and the direction of the State Department of Education, had been sporadic.

Ollie E. Fink, who has had a distinguished career as a conservation teacher and who is thoroughly grounded in soil conservation facts, is employed as curriculum supervisor. Arthur R. Harper, well-known naturalist, is the field supervisor. Both are paid by the Ohio Division of Conservation and Natural Resources but work under the supervision largely of the State Department of Education.

A committee of leading educators and conservationists aided in setting up the outline of teaching material. Mr. Harper was charged with the responsibility of spending enough time in various counties to prepare localized teaching material to supplement the State-wide material which was compiled under the direction of Mr. Fink.

Thus, both teachers and students are provided a kind of information about soils, rocks, water resources, timber supplies and wildlife resources of their own community.

"The Teacher Looks at Conservation" and "Conservation for Tomorrow's America" afford a wealth of source material data that may be integrated into regular school courses, and suggest methods of teaching conservation. As rapidly as possible, this is being augmented by localized materials.

For several years the Ohio Conservation Laboratory—a school in the forest—has been conducted for teachers. Through the cosponsorship of Ohio State University it has offered college credit for the successful completion of courses. From this laboratory have come many fine teachers—teachers who have studied conservation on the land itself and who know now that civilization depends upon the proper use of the land.

Even though there may be a desire on the part of both conservationists and educators that conservation be taught in all the schools, the lack of properly trained teachers—teachers who understand the relationship existing in the landscape between soil, water, plants and animals—has retarded the work greatly. The Ohio program has attacked the problem through the Tar Hollow laboratory and through providing helpful printed materials. Personnel has been provided also to assist teachers, local committees and other groups. Condensed into everyday language, this material often contains conservation concepts that would require the reading on the part of the teacher of hundreds of volumes.

Yes, Ohio's conservation education program starts with the soil. Geology becomes something more than rocks, soil and water. Biology becomes something more than plants and animals. Students are acquiring a new conception of the world in which they live. They are recognizing the need to conserve the God-given natural resources upon which civilization becomes either strong or weak.

ENCORES REQUESTED

Dr. Hugh H. Bennett, Chief of the Soil Conservation Service, has made a hit with radio listeners in South Africa.

The Overseas Branch of the Office of War Information tells us that the Chief's broadcast talks to South Africa on soil conservation (Soil Conservation Magazine, August 1943) have been given an "enthusiastic reception."

The talks aroused such widespread interest, in fact, that when one of them failed to come through clearly due to atmospheric conditions, OWI received a request for the entire text to be cabled! This was done and given considerable newspaper publicity, OWI informs us.

Another overseas request for the Chief's talks came from the editor of *Agriculture*, the official journal of the British Ministry of Agriculture and Fisheries. The editor thought "the material of the talks is excellent" and asked for an abridged version of the five broadcasts. The British Embassy sent the abridged version with a preface that started in part:

> The world is greatly indebted to the United States for much of the fundamental work that has been done on soil conservation and not least to Dr. Bennett personally who, like his counterpart in Britain, Sir George Stapledon, holds so strongly to the creed that a nation's soil is its greatest heritage.

Because of the success of these talks in South Africa, where interest in American agricultural methods is keen, OWI has asked for a couple of encores by the Chief, as well as talks by other men in the Department on other phases of agriculture.

Incidentally, Henri Folmer, out in Mountainair, New Mex. (Soil Conservation, April 1943), recently made a recording in Dutch for short-waving to South Africa. He described the work being done by the Soil Conservation Service and by the soil conservation districts in his part of the country.

—Emil Corwin.

WAR COMES TO THE "BRIAR PATCH"

(*Continued from page 101*)

to be cut are marked with white paint or with axe marks at 4½ feet above the ground and just above the ground-line. The general goal is to improve growth conditions for the remaining trees so that another cutting can be made in 15 to 20 years.

Before the harvesting program got under way on the project, Wayne Ackerman, project forester, and his assistants had already selected and marked for cutting the trees on several small areas and the project was ready to provide work for many of the small operators in that section who had reached the end of the supply of available stumpage on private lands. A regular inspection of each cutting is made to see that the logger does not waste any merchantable timber. Trees must be cut as close to the ground as possible, generally under 12 inches, and all of the merchantable part of the trees must be used. Branches must be lopped off so that the tops of the trees will lie within 3 feet of the ground and they must be pulled away from standing trees to reduce the fire hazard and prevent beetle damage to remaining trees.

When the sales program was first started it took a lot of effort to convince the sawmill men that they could operate at a profit under Government regulations. Most of the operators were used to the old type of clear cutting on private land, cutting any tree that would make a single "two by four" leaving high stumps, and wasted logs in tree tops. After it was explained to them that the best part of the butt log was left in high stumps and that a few licks with the ax meant another log or stick of pulpwood from the tops, bringing them that much more profit, the operators began to get interested.

As a result of this effort during the past 15 months, 29 sawmills harvested, in addition to the salvage of 1,000,000 feet of storm timber, 6,000,000 board feet of lumber and equivalent units of pulpwood, veneer blocks, and other specialized products. Most of the mills were owned and operated by local residents within or near the project. Each mill employed an average of 18 men for logging, sawing, and hauling, making a total of 482 local people who did gainful wartime work in harvesting this timber.

Most of the cutting took place during the winter when part-time farm labor was available. All the products produced, with the exception of pulpwood, were sold to local wood-using plants working on special war contracts. The project is making careful studies of forested areas and as soon as merchantable timber is located it is marked for cutting and made available for sale.

All this logging is, of course, temporarily upsetting the everyday life of Br'er Rabbit and the other occupants of the "Briar Patch." Eventually, however, through sound forest management, extensive development of grazing and hay lands, and revegetation of gullied, wornout soil, they'll find conditions much more like they were when Joel Chandler Harris wrote his famous stories of the "Briar Patch" country.

LONG VIEW APPLIED TO SHORT-TERM LEASE

A Bucks County, Penn., farmer believes so strongly in soil conservation that he recently installed over 9,000 feet of terracing and 60 acres of strip cropping on a 150-acre tract which he rented on a cash basis for only 1 year.

James Iden Smith has a farm of his own on which he has been following a soil conservation plan for 3 years. This year he figured he could handle more acreage, so he rented 150 acres of unused land from a neighbor, John Price Jones. They signed a 1-year lease. Mr. Smith tore out 100 rods of fencing and removed a lot of brush from one 40-acre field. Then he laid the field out in contour strips and installed 9,300 feet of terraces. He also contour stripped 20 acres more elsewhere on the tract. A Soil Conservation Service technician helped him lay out the lines, and the work was done with ordinary farm equipment plus a small ditcher.

Confidence in increased yields which he expected soil conservation practices would bring made Mr. Smith willing to give time and labor to make these changes on a tract rented for a single year. Confidence in the added protection to his land which soil conservation would bring made Mr. Jones, the owner, willing to permit the changes. The owner was also interested because he thought that the conservation measures would help prevent low water and silting in farm ponds located on his place.

Perhaps Mr. Smith's interest in progressive farming is inherited, like his farm, from his great, great grandfather, Joseph Smith, who during the American Revolution invented the first cast iron moldboard plow used in this country. The plow was later patented by Joseph's brother, Robert, in 1800.

FUR BEARERS FIGHT AXIS

(*Continued from page 108*)

land often bring about increased yields of fur animals. Densely vegetated marshes are opened to muskrats by the construction of level or blocked ditches, designed not to drain the marsh but to enable the animals to utilize more of the area. Water control structures have permitted consistently high yields of pelts by maintaining the vegetation in a condition most suitable for fur animals.

The piling of brush, rocks, stumps, and other unwanted materials in odd spots on the farm may repay the extra haulage in terms of furs. If placed not far from water, dens are created that may be used by skunks, opossums, raccoons, and mink.

Artificial dens provide a temporary home for many fur bearers, which, though expensive and not so useful in the long run as land improvements, nevertheless, may prove interesting and productive for the ardent trapper. Old tiles sunk in the ground and nest boxes in trees are often useful. Records show that the former provide attractive dens for striped and spotted skunks, weasels, mink, opossums, raccoons, and cottontails, while nest boxes are "home" to 'coons and 'possums.

The 3–F's have gone to war—and with a little help more of them can join the battle—to the profit and recreation of American farmers.

"MILE-A-MINUTE" CLUB

As a result of consistently plugging the virtues of kudzu on a half-hour daily radio program over Station WAGA, Atlanta, Ga., Channing Cope, manager of the agricultural division of a large electric power company, has organized the Kudzu Club of Georgia with 600 members, which he expects to increase to 2,000 members by January 1.

Mr. Cope not only gets up before dawn during the week to present the program at 6 o'clock, but he also practices on his own farm near Newton, Ga., what he preaches to his early morning audience. Members of the club are pledged to help neighbors get kudzu started on their farms.

"I have long been an advocate of easy farming through the use of pastures, kudzu, sericea, and trees," he says. "It is not idle dreaming to say that if we had a million acres of Georgia land wrapped up in kudzu, we would have one of the richest and most desirable states in the union."

CONTOUR-CORN CHAMPION SOUGHT

"Indiana State Champion Best Yield 5 Acres of Corn Planted on the Contour" is the inscription on a new victory trophy offered this year by the Indiana Corn Growers' Association. It is believed to be the first State yield award for contoured corn.

Rules for the contest are the same as for the association's regular annual 5-acre corn contest except that the corn must be on the approximate contour on slopes of 2 percent or more. It may be grown in fields where strip cropping or terracing is practiced. Farmers who enter the contour contest also are eligible to compete in the over-all class.

The trophy—a gilded victory figure on a walnut base—was purchased by donations from Soil Conservation Service personnel in Indiana. It was on display several months at soil conservation district offices over the State. The presentation will be made at the annual corn growers' banquet which is held each year at Purdue University.

OVER THE TOP IN BOND CAMPAIGN

As this issue goes to press, the final report on the participation of Soil Conservation Service employees in the Third War Savings Bond campaign is released.

Joining Dr. H. H. Bennett, Chief of the Service, in felicitations, the committee in charge "extends congratulations to our employees for having answered the Government's call for funds by making cash purchases of bonds during this drive of 27 per cent above the quota established for the Service."

The story is told in the tabulation below:

Report on the Third War Bond Drive—Cash Purchases of Bonds

	Quota	*Bond purchases*	*Percent of quota*
Region 1	$29,085	$29,869	102.7
Region 2	68,248	86,951	127.4
Region 3	49,343	65,037	131.8
Region 4	68,743	93,456	135.9
Region 5	37,442	53,492	142.9
Region 6	35,112	48,898	139.2
Region 7	31,943	33,329	104.3
Beltsville	14,055	13,325	94.8
Regions and Beltsville	333,971	424,352	127.1
Washington	20,376	25,493	125.1
Service	354,347	449,845	127.0

REVIEWS

THE AMERICAN LAND—Its History and Its Uses. By William R. Van Dersal. Pp. xvi plus 215; 64 pl. September 1943

By Paul B. Sears

This is a book by a clever and industrious lad, who works systematically and writes clearly. He has had unusual opportunities, because of his work with the Soil Conservation Service, to become acquainted with the useful plants of the United States, and the varied landscape upon which they are produced. Because of his ecological training and doubtless, too, because of the comprehensive program of the Service of which he is such a valued member, he has a sense of historical sweep, and of the movement of human activity across the United States.

His thesis appears to be (1) that the land is the concern of every one of us, (2) that appreciation of the land is a matter for the intelligence as well as the feelings, and (3) that, for all of its Old World origins, American culture is working toward something distinctively American. To all of which I say, Amen.

Let him speak for himself. "The story we are about to tell of American land and the way it is used has about it some points that have escaped many historians. The development of America has not been altogether the simple business of transplanting European culture to a new land and making it flourish. There are too many things basically different in America for that. The fact is that ways of life are shaped in good part by the kinds of places in which men live. The story of America is actually one of growth away from Europe, toward a way of life fitted to a new environment, and because this is so, eventually the European settlers of America changed quite as much as they changed the landscape. And ever since, although there are still to be found many traces of European culture in America, Americans have steadily moved away, just as the frontier did, from the influence of Europe toward a life that is as truly American as the land itself." Well spoken.

Following a brief chapter on the land in the beginning, and one on the present uses of the land, the bulk of the book is taken up by a discussion of the products of that land. After an enumeration and discussion of the many crop, orchard, and garden plants that will delight any connoisseur of seed catalogs, the author turns to range, forest, and wildlife, winding up with a brief, but first-rate discussion of erosion and new methods of land use and management.

Not only has he included history that is not in the books, but a great deal of botany that is meticulously kept out of most courses in that gentle but essential science. No part of the study of plants has any greater intrinsic interest than the origins and development of cultivated plants. In admirably condensed form, much of it will be found here, insofar as it applies to the American scene.

No gardener breathes with a soul so dead that he will not get a wallop from the main part of the book. Here will be found the most recent ideas on the South American origin of maize, the story of the long struggle to produce good grapes in Vinland and its final solution by American mutations, the benefits to the native American strawberry of a long sojourn in European gardens, and many another—all of which I commend to anyone who has ever had loam under his fingernails.

The illustrations deserve especial mention. The selection is superb, the photography leaves nothing to be desired, and the cuts, which are bled off the page to give maximum enlargement, are of a uniformly fine quality which reflects great credit upon the publisher. If there exists an award for achievement in the field of visual education, the author should have it.

Dr. Van Dersal portrays a landscape of almost unbelievable richness and promise. But the discerning reader will presently discover that all of this is contingent upon how we behave. Without recrimination, enough of our past mistakes and their consequences are described to sober the most sanguine and heedless. Enough of our magnificent achievements are described to give us hope. Blandly but thoroughly, the book puts every one of us on the spot.

I have read somewhere of a professor who became interested in the social significance of Walt Disney's work, and who went to interview the maestro about it. Disney listened, and then replied, "Hell, Doc, I don't know anything about that. All I try to do is to make a good film." Having this story in mind, I am reluctant to discuss the author's ultimate purpose. Nevertheless his book is a document for all Americans—urban as well as rural. His is a cool and detached evangelism which will carry conviction by its quiet piling up of evidence.

For REFERENCE

Compiled by ETTA G. ROGERS, Publications Unit

Field offices should submit requests on Form SCS–37, in accordance with the instructions on the reverse side of the form. Others should address the office of issue.

SOIL CONSERVATION SERVICE

Laboratory Investigations on Bed-Load Transportation and Bed Roughness: A Compilation of Published and Unpublished Data. SCS–TP–50. Soil Conservation Service. March 1943. mm.

OFFICE OF INFORMATION

U. S. DEPARTMENT OF AGRICULTURE

American Farmers and the United Nations Conference on Food and Agriculture. The Farmer and the War—No. 5. Bureau of Agricultural Economics, U. S. Department of Agriculture. August 1943.

Commercial Dehydration of Vegetables and Fruits in Wartime. Miscellaneous Publication No. 524. Agricultural Research Administration, U. S. Department of Agriculture. September 1943.

Forage for Fall Feeding. AWI–62. Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, U. S. Department of Agriculture. September 1943.

The Forest Situation in Ravalli County, Mont. Forest Survey Release No. 21. Northern Rocky Mountain Forest & Range Experiment Station, U. S. Forest Service, Missoula, Mont. July 1943.

Let's Talk about Farm Labor for the Wartime Job: A Discussion Guide for Farm People and for those who are Dependent on Them. DS–23. Bureau of Agricultural Economics and Extension Service, U. S. Department of Agriculture. July 1943.

Louisiana Forest Resources and Industries. Miscellaneous Publication No. 519. Forest Service, U. S. Department of Agriculture. August 1943. 25¢.[1]

Lunch at School. Food Distribution Administration, War Food Administration, U. S. Department of Agriculture. September 1943.

Oven Drying: One Way to Save Victory Garden Surplus. AWI–59. Bureau of Human Nutrition and Home Economics, Agricultural Research Administration, U. S. Department of Agriculture. August 1943.

Preservation of Vegetables by Salting or Brining. Farmers' Bulletin No. 1932. Bureau of Agricultural and Industrial Chemistry, Agricultural Research Administration, U. S. Department of Agriculture. September 1943. 5¢.[1]

Rabies and Its Control. Part 8. Bureau of Animal Industry, U. S. Department of Agriculture. 1943.

Report on the Agricultural Experiment Stations, 1942. Office of Experiment Stations, Agricultural Research Administration, U. S. Department of Agriculture. August 1943. 20¢.[1]

Soybeans Go to War. BAE-Ext. Flier–7. Bureau of Agricultural Economics and Extension Service, U. S. Department of Agriculture. 1943.

STATE BULLETINS

Aggregation of an Orchard and a Vegetable Soil Under Different Cultural Treatments. Bulletin No. 640. Agricultural Experiment Station, Wooster, Ohio. May 1943.

Agricultural Research in Louisiana, 1941–1942: Annual Report. Agricultural Experiment Station, Louisiana State University and A. & M. College, Baton Rouge, La. 1943.

Butchering and Curing Pork on the Farm. Bulletin No. 120. Agricultural Extension Service, University of Florida, Gainesville, Fla., with the cooperation of the U. S. Department of Agriculture. March 1943.

Combine Harvester Investigations. Bulletin No. 643. Agricultural Experiment Station, Wooster, Ohio. July 1943.

Cottons Resistant to Wilt and Root Knot and the Effect of Potash Fertilizer in East Texas. Bulletin No. 627. Agricultural Experiment Station, Texas A. & M. College, College Station, Tex. February 1943.

Factors that Affect Fat Content of Milk. Bulletin No. 238. Extension Service, New Jersey State College, Rutgers University, New Brunswick, N. J., with the cooperation of the U. S. Department of Agriculture. August 1943.

Feed Hoppers for Poultry. Vol. 30, No. 4. Agricultural Experiment Station, Rutgers University, New Brunswick, N. J. April–May 1943.

Feeding Cattle for Beef. Bulletin No. 581. Extension Service, Cornell University, Ithaca, N. Y. March 1943.

Growing Potatoes in West Virginia. Circular No. 78. Agricultural Experiment Station, Morgantown, W. Va. July 1943.

Levels of Living and Population Movements in Rural Areas of Ohio, 1930–1940. Bulletin No. 639. Agricultural Experiment Station, Wooster, Ohio. March 1943.

New Jersey Poultry Rations. Bulletin No. 645. Agricultural Experiment Station, Rutgers University, New Brunswick, N. J. June 1943.

Protein Feeds for the War Period. Circular No. 47. Agricultural Experiment Station, South Dakota State College, Brookings, S. Dak. June 1943.

Saving Young Animals. Circular No. 177. Extension Service, North Dakota Agricultural College, Fargo, N. Dak. April 1943.

Seed Testing—An Aid to Crop Production. Bulletin No. 302. Agricultural Extension Service, Washington State College, Pullman, Wash., with the cooperation of the U. S. Department of Agriculture. March 1943.

Soil Conservation Districts in Kentucky: A Progress Report on Soil Conservation Districts. Report No. 1. The State Soil Conservation Committee, Frankfort, Ky. March 1943.

Soil Fertility Control for Greenhouses. Special Bulletin No. 325. Agricultural Experiment Station, Michigan State College, East Lansing, Mich. May 1943.

Soil Practices for Production—Profit Conservation. Extension Folder F–57. Extension Division, Michigan State College, East Lansing, Mich., with the cooperation of the U. S. Department of Agriculture. April 1943.

Wartime Farm and Food Policy: Using Our Soils for War Production. Pamphlet No. 7. The Iowa State College Press, Ames, Iowa. April 1943. 20¢.

---

[1] From Superintendent of Documents, U. S. Government Printing Office, Washington, D. C.

PUBLIC LIBRARY
NOV 10 1942
DETROIT

MRS. BUILDS THE STOKSTAD TERRACES

By F. G. LOYD

Mrs. Lewis O. Stokstad, farm wife, operates a tractor pulling a binder on terrace she constructed with a plow in the spring of 1942.

Farm wives who know few moments of leisure still find time to give their husbands a lift with the field work these busy, war-time days. They do all manner of "men's work," but Mrs. Lewis O. Stokstad is one of the very few who has built terraces with a plow.

During the morning milking one day last spring, Mrs. Stokstad volunteered to build one-half mile of terraces when the project seemed destined to fall through for lack of time and labor.

"Don't worry about getting those terraces built," she said confidently, "I'll do them myself after I get the breakfast table cleared."

And she did, in spite of the fact that the only terraces she had seen previously were on the Alpine slopes in Europe where she had vacationed one summer during her school teaching days.

The plan that the Stokstads had worked out with the assistance of the Dane county, Wis., soil conservation district, called for construction of terraces in the 20-acre field to be seeded to oats last spring. Cornelius V. R. Pond and Alva A. Lattimer of the conservation district staff, designed and staked out the terrace system. Mrs. Stokstad did the rest.

Mrs. Stokstad's accomplishment emphasizes the progress the Service has made in the last 10 years in simplifying ways of getting soil conservation practices on the land.

In the Service's early days terraces were built only with heavy and special machinery, but now, as Mrs. Stokstad has demonstrated, they can be built by anyone who can handle a tractor and plow.

When the oats were ready to harvest this former Owosso, Mich., school teacher was on the job again (see photo).

The Stokstads are dairy farmers, with a herd of 48 purebred Guernseys that includes 20 milkers. Before they were married, Stokstad was on the show circuit as herdsman for some of the finest strings of Guernseys in the country.

But now they are back in the rural community southeast of Madison, Wis., where they grew up on neighboring farms. They are raising a family and making a go of farming on their own 120-acre place, although, as Mrs. Stokstad said with a reminiscent twinkle in her dark eyes, "At first it was a little hard for Lewis to forget we didn't have all the money that some of his former employers had."

EDITOR'S NOTE.—The author is head, regional current information section, Soil Conservation Service, Milwaukee, Wis.